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TITLE: Incidence and Psychophysiology of Post-Traumatic Stress  
Disorder in Breast Cancer Victims and Witnesses

PRINCIPAL INVESTIGATOR: Roger K. Pitman, M.D.

CONTRACTING ORGANIZATION: Harvard College  
Cambridge, Massachusetts 02138

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13. ABSTRACT ( <i>Maximum 200</i>  The objectives are a.) to evaluate the incidence of post-traumatic stress disorder (PTSD) in breast cancer patients and "witnesses" (i.e., significant others), and b.) to validate interview-based diagnoses by measuring physiologic responses during script-driven imagery of patients' and witnesses' personal experiences with breast cancer. To date, 35 patients and 26 witnesses have been studied. Telephone interview data have been obtained on an additional 24 patients and 21 witnesses. Using the Clinician-Administered PTSD Scale, none of the patients or witnesses have met DSM-IV criteria for current PTSD; four patients and two witnesses have met criteria for past PTSD. Physiologic responses of patients and witnesses have fallen in the range of non-PTSD rather than PTSD comparison subjects. Results to date suggest that the incidence and physiologic responses of breast cancer patients and witnesses are lower than those of survivors of other traumatic experiences.			
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FOREWORD

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Rosa K. Friedman MD 11/20/96  
PI - Signature Date

Principal Investigator: Roger K. Pitman, M.D.

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5. INTRODUCTION. While it is clear from research during the past two decades that extreme, acute stressful events such as military combat or violent rape can and do produce post-traumatic stress disorder (PTSD), the ability of less acute stressors to produce this disorder remains unclear. The stressful experiences of having breast cancer diagnosed and treated in oneself or one's loved one are cases in point. Such experiences are often accompanied by subjective reactions of fear, helplessness, and horror, which are elements in diagnostic criteria for PTSD set forth in the *Diagnostic and Statistical Manual of Mental Disorder*, fourth edition (DSM-IV; American Psychiatric Association, 1994). However, although a lesion on a mammogram may represent as much of a threat to a woman's survival as a rapist's knife at her throat, the threat posed by the lesion is less immediate and less palpable.

The objectives of this project are a.) to evaluate the incidence of PTSD in breast cancer patients and their "witnesses" (i.e., significant others), and b.) to attempt to validate interview-based diagnoses of PTSD by using a psychophysiological technique previously shown by the PI and colleagues (Orr & Pitman, 1993; Orr et al, 1993; Pitman et al, 1987, 1990; Shalev et al, 1993) to significantly discriminate research subjects with PTSD and without PTSD. In the present project, this is being done by measuring psychophysiological responses during script-driven imagery of the most stressful aspects of patients' and witnesses' personal experiences with breast cancer in themselves or their loved ones.

The project's hypotheses are: A.1.) the incidence of diagnosed PTSD in breast cancer patients is comparable to the incidence of PTSD resulting from other, previously studied, traumatic events; A.2.) the incidence of diagnosed PTSD in breast cancer witnesses is comparable to the incidence of PTSD resulting from other, previously studied, traumatic events; B.1.) physiologic responses during personal imagery of breast-cancer-related experiences are greater in breast cancer patients with PTSD than in breast cancer patients without PTSD; B.2) physiologic responses during personal imagery of breast-cancer-related experiences are greater in breast cancer witnesses with PTSD than in breast cancer witnesses without PTSD; C.1.) PTSD breast cancer patients' physiologic responses during personal imagery of their breast-cancer-related experiences are comparable to other, previously studied, PTSD subjects' physiologic responses during personal imagery of their traumatic experiences; and C.2). PTSD breast cancer witnesses' physiologic responses during personal imagery of their breast-cancer-related experiences are comparable to other, previously studied, PTSD subjects' physiologic responses during personal imagery of their traumatic experiences.

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6. BODY OF REPORT. The project is proceeding as proposed, although at a slower pace than hoped. Unfortunately, recruitment has lagged behind projections. The reasons for this are two-fold. First, the project start date was delayed by several months because of the need to obtain an unforeseen, additional institutional review board (IRB) approval; this situation was fully described in the 01 year progress report. Second, even after all necessary IRB approvals were in place, despite strenuous efforts we have not received the cooperation we had hoped from local physicians in referring suitable subject candidates to us. This problem appears not only due to their busy office practices, but also due to record keeping problems that surprisingly have made it difficult or impossible for local physicians to identify their own patients who might be suitable subject candidates.

We attempted to address the latter problem by seeking from the State of New Hampshire Tumor Registry a printout of breast cancer patients who would represent potential subject candidates for our study, along with the names of these individuals' physicians. Unfortunately, the State resisted providing us such a list for the better part of a year. Finally, however, they agreed to cooperate with us in this regard. We now have a list of tumor registry cases which we are taking back to physicians' offices to assist them in identifying and referring us subject candidates.

As of the end of the project's 02 year, we had studied 61 subjects. From the psychodiagnostic standpoint, using the Clinician-Administered PTSD Scale (CAPS; Blake et al, 1995), none of the 35 breast cancer patients studied to date met DSM-IV criteria for current PTSD related to their breast cancer experiences; four patients met DSM-IV criteria for past but not current (i.e., lifetime) PTSD. Of the 26 witnesses, none met DSM-IV criteria for current PTSD related to their experiences of their significant others' breast cancer: two met DSM-IV criteria for past PTSD. (One witness was erroneously reported in the 01 year progress report to have current PTSD and was subsequently correctly classified as having only past PTSD.)

Patients' and witnesses' mean physiologic responses during personal script-driven imagery of the most stressful aspects of their experiences with breast cancer in themselves or their loved ones appear as gray bars in the four figures in the Appendix. The mean responses of previously published PTSD comparison groups (Orr & Pitman, 1993; Orr et al, 1993; Pitman et al, 1987, 1990; Shalev et al, 1993) appear in black to the left of the patients'

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and witnesses' bars, and the mean responses of previously published non-PTSD comparison groups in white appear to the right of the patients' and witnesses' bars.

Inspection of Figures 1-4 suggests that the psychophysiological responses of the patients and witnesses studied to date have fallen into the range of the non-PTSD comparison rather than the PTSD comparison subjects, consistent with the absence of current PTSD diagnoses on the CAPS interviews. There is a trend in the data for the subjects with past PTSD to be more physiologically responsive; however, these data are preliminary due to the small numbers of subjects.

Application of a psychophysiological discriminant function, derived from the heart rate, skin conductance, and frontalis electromyogram responses of the previously published PTSD and non-PTSD comparison groups, to the breast cancer patients and witnesses studied in the laboratory to date has classified five patients and four witnesses as physiologic responders. This pattern suggests that a number of breast cancer patients and witnesses who deny sufficient symptoms to qualify for a PTSD diagnosis on interview nevertheless respond physiologically during recollection of their experiences with breast cancer as if they had PTSD.

In addition to the subjects reported above, we have completed telephone interviews using a modified version of the PTSD Check List (PCL) on 45 more subjects (24 patients, 21 witnesses), 20 of whom are scheduled to come in for the CAPS and psychophysiological testing. Of these 24 patients, 1 had presumptive current PTSD and an additional 7 had presumptive past PTSD. Of these 21 witnesses, 2 had presumptive current PTSD and an additional 5 had presumptive past PTSD. These current and past PTSD estimates are probably high, because in our experience to date with subjects who have completed both instruments, the PCL has tended to overdiagnose PTSD compared to the CAPS.

Thus, including the telephone interview, we have obtained data on 106 subjects to date, 59 patients and 47 witnesses.

7. CONCLUSIONS. If the present trends continue, none of the project's hypotheses will be confirmed. As indicated in the Introduction, this would not be entirely unanticipated. However, we are exploring possible explanations for the presence of false positive psychophysiological responders (alternately conceptualized as false negative PTSD cases according to diagnostic interview), including the possible presence of a so-called repressive coping style (Weinberger, 1990) in these subjects.

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#### 8. REFERENCES

American Psychiatric Association (1994). *Diagnostic and Statistical Manual of Mental Disorders*, 4th Edition. Washington: American Psychiatric Association.

Blake DD, Weathers FW, Nagy LM, Kaloupek DG, Gusman FD, Charney DS, Keane TM (1995). The development of a clinician-administered PTSD scale. *Journal of Traumatic Stress* 8:75-90.

Orr SP, Pitman RK (1993). Psychophysiological assessment of veterans attempting to simulate post-traumatic stress disorder during personal combat imagery. *Biological Psychiatry* 33:127-129.

Orr SP, Pitman RK, Lasko NB, Herz LR (1993). Psychophysiological assessment of post-traumatic stress disorder imagery in World War II and Korean combat veterans. *Journal of Abnormal Psychology* 102:152-159.

Pitman RK, Orr SP, Forgue DF, Altman B, de Jong JB, Herz LR (1990). Psychophysiological responses to combat imagery of Vietnam veterans with post-traumatic stress disorder versus other anxiety disorders. *Journal of Abnormal Psychology* 99:49-54

Pitman RK, Orr SP, Forgue DF, de Jong JB, Claiborn JM (1987). Psychophysiological assessment of post-traumatic stress disorder imagery in Vietnam combat veterans. *Archives of General Psychiatry* 44:970-975.

Shalev AY, Orr SP, Pitman RK (1993). Psychophysiological assessment of traumatic imagery in Israeli civilian post-traumatic stress disorder patients. *American Journal of Psychiatry* 150:620-624.

Weinberger DA (1990). The construct validity of repressive coping style. In Singer JL (Ed.): *Repression and Dissociation*, Chicago, University of Chicago Press:337-386.

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APPENDIX

Patients' and Witnesses' Physiologic Responses During  
Personal Imagery of Breast-Cancer-Related Experiences,  
Along with PTSD and non-PTSD Comparison Population Means

Figure 1: Heart rate  
Figure 2: Skin conductance  
Figure 3: Left lateral frontalis EMG  
Figure 4: Left corrugator EMG

Key to Comparison Populations

PTSD1: male PTSD Vietnam combat veterans (Pitman et al, 1987, 1990)

PTSD2: male PTSD World War II and Korean War combat veterans (Orr et al, 1993)

PTSD3: male and female Israeli non-military trauma victims (Shalev et al, 1993)

non-PTSD1: male mentally healthy Vietnam combat veterans (Pitman et al, 1987, 1990)

non-PTSD2: male mentally healthy Vietnam combat veterans attempting to simulate PTSD-like responses (Orr & Pitman, 1993)

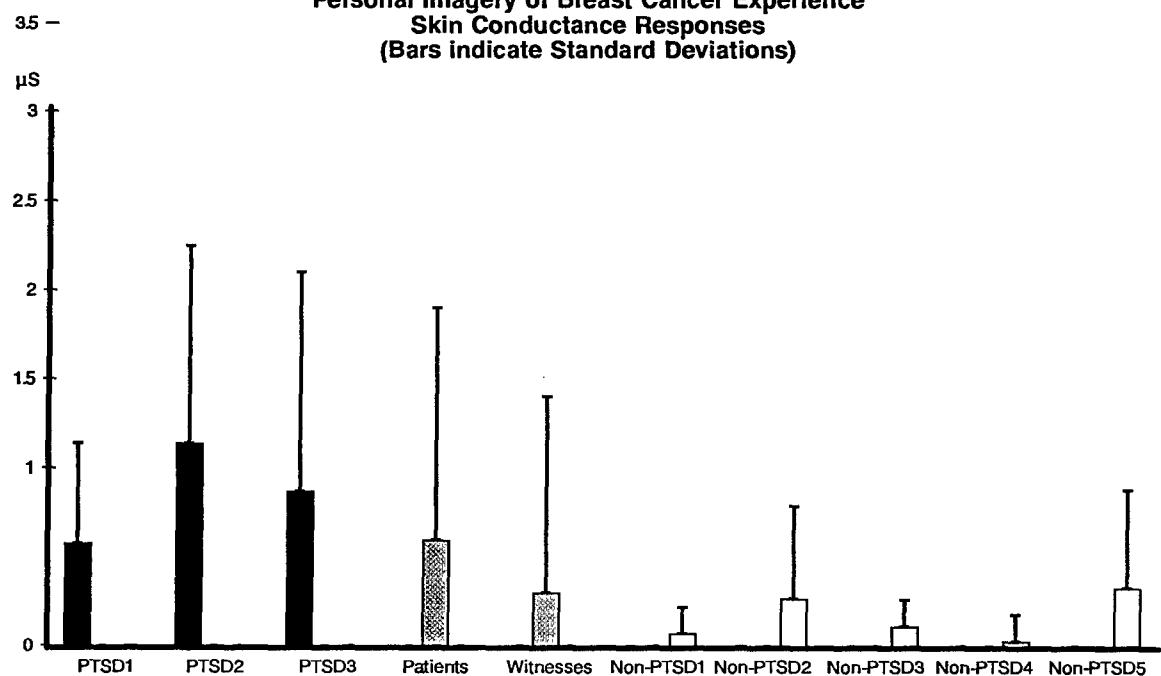
non-PTSD3: male Vietnam combat veterans with non-PTSD anxiety disorders (Pitman et al, 1990)

non-PTSD4: male World War II and Korean War combat veterans (Orr et al, 1993)

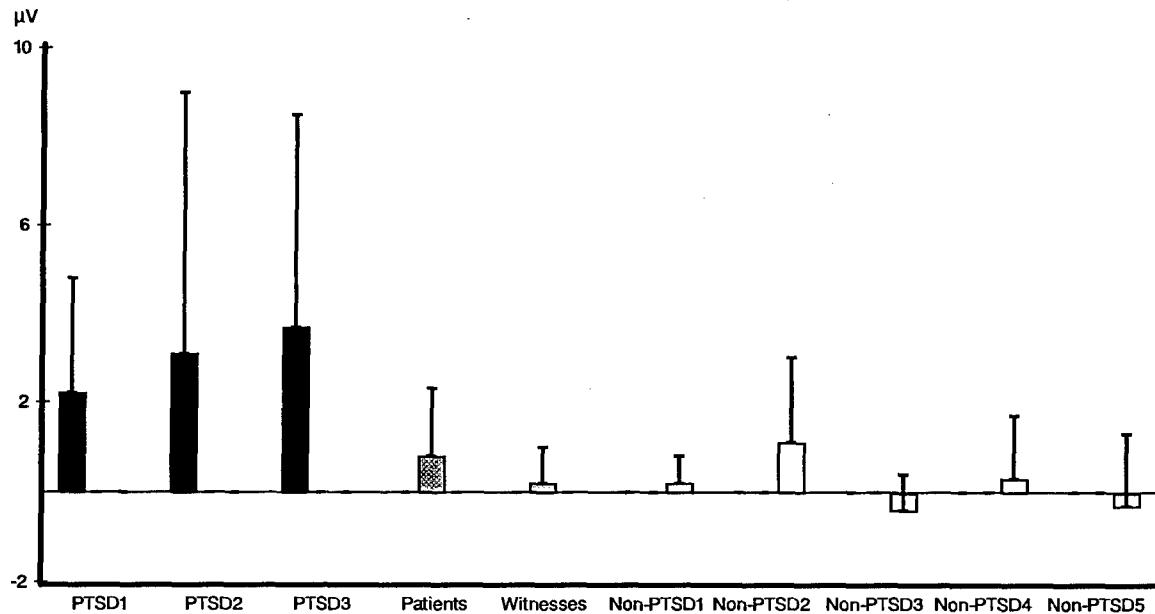
non-PTSD5: male and female Israeli non-military trauma victims (Shalev et al, 1993)

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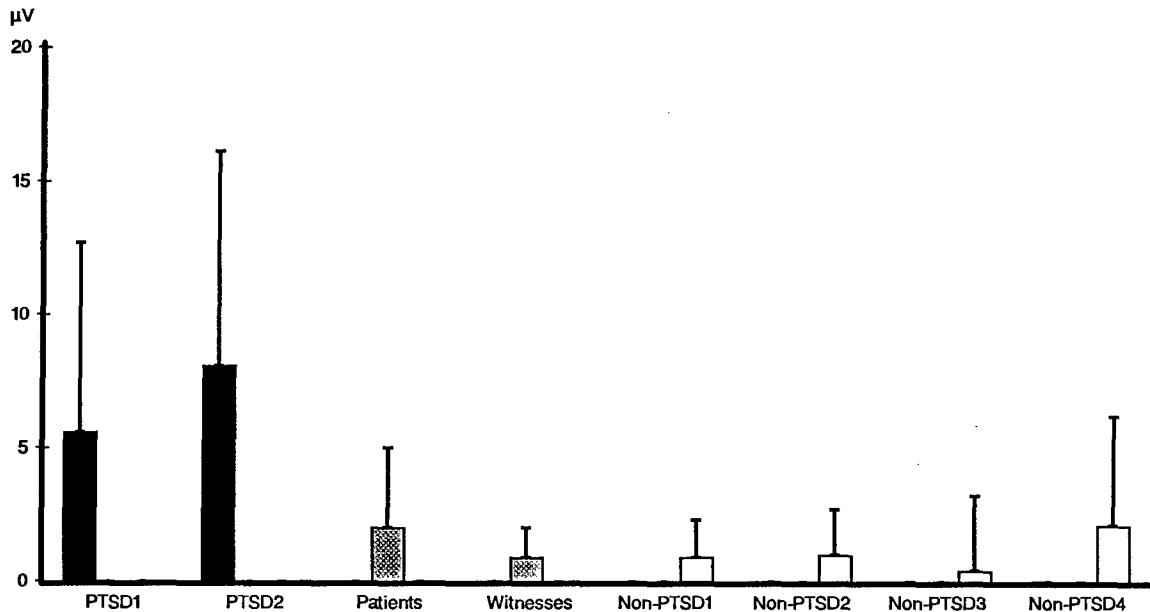
**Personal Imagery of Breast Cancer Experience  
Skin Conductance Responses  
(Bars indicate Standard Deviations)**



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**Personal Imagery of Breast Cancer Experience**  
**Frontalis EMG Responses**  
**(Bars indicate Standard Deviations)**

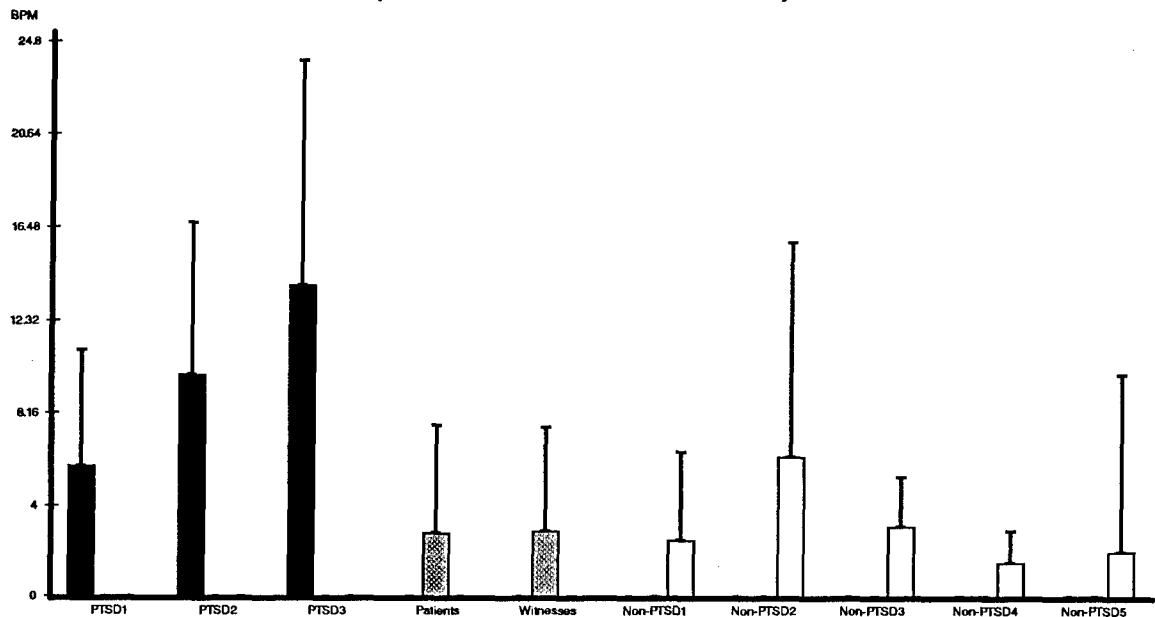


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**Personal Imagery of Breast Cancer Experience  
Corrugator EMG Responses  
(Bars indicate Standard Deviations)**



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**Personal Imagery of Breast Cancer Experience  
Heart Rate Responses  
(Bars indicate Standard Deviations)**





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